

# MEMORANDUM

September 9, 2020

TO: Historical Memo

FM: Pete Carter / Steven Yee

RE: Vashon Wastewater Treatment Plant – August 2020

The Vashon Plant performed well in August 2020. Effluent Biochemical Oxygen Demand (BOD<sub>5</sub>) averaged 3.3-mg/l and Total Suspended Solids (TSS) averaged 3.8-mg/L. BOD<sub>5</sub> and TSS removals were 99.3% and 98.9% respectively. All required analytical testing was completed.

Influent flow averaged 0.085 million gallons per day (MGD). A total of 0.33-inches of precipitation fell in August as measured at the West Judd Creek rain gauge; the Seatac Airport rain gage measured 0.30-inches. The max-day precipitation of 0.13-inches occurred on August 21. The max-day flow of 0.106-MGD occurred on August 31 with a peak hour flow of 0.248-MGD. No flow equalization was necessary in August. Effluent turbidities remained low (<5 NTU) during the high flows.

The oxidation ditch was operated at an average sludge retention time of 15-days. The MLSS concentration was in the range of 2,280 to 2,880 mg/L. The sludge volume index (SVI), which measures the MLSS's settling characteristics, averaged 74 mL/g. An estimated 7400 dry pounds of waste activated sludge were hauled to South Plant for further treatment in August.

One set of samples was collected this month (August 18) for nutrient and alkalinity analysis. Total nitrogen (N) removal was 83%, with an effluent total inorganic-N level of 7.2-mg/L (0.2-mg/L NH<sub>3</sub>-N and 7.0-mg/L NO<sub>2</sub>+NO<sub>3</sub> as N). Effluent phosphorus (P) was 5.5-mg/L, resulting in a Total-P removal of 53%. No soda ash was added to the ditch in August for pH adjustment. The lowest effluent pH of the month was pH 7.0.

One clarifier (#2) was in service the entire month of August; two clarifiers are not needed during the dry season so one is removed from service for maintenance and energy savings. The UV system operated with both stages in AUTO.

Vashon – August 2020  
Process Summary

Table 1. Summary of Monthly Flow & Rain

Monthly Total Flow Volume, MG	Monthly Average Flow, MGD	Minimum Daily Flow, MGD	Maximum Daily Flow, MGD	Total Rainfall, Inches
2.646	0.085	0.069	0.106	0.30

Table 2. Summary of Monthly Compliance/Exceptions

Biochemical Oxygen Demand 5-day			Total Suspended Solids			Fecal Coliform (no./100 mL)	
Permit mg/L	Actual mg/L	Rem %	Permit mg/L	Actual mg/L	Rem %	Permit	Actual
30	3.3	99.3	30	3.8	98.9	200	E1.1

Table 3. Summary of Weekly Compliance/Exceptions

	Biochemical Oxygen Demand (mg/L)		Total Suspended Solids (mg/L)		Fecal Coliforms (Organisms/100 mL)	
	Permit	Actual	Permit	Actual	Permit	Actual
Week 1	45	3.1	45	3.3	400	E0.6
Week 2	45	3.4	45	4.0	400	<1
Week 3	45	3.7	45	4.7	400	E1
Week 4	45	3.0	45	3.3	400	E2.2